Work Orde		591		*99!	591*							Page 1	
Revision ID:	646.3717			Accept	*N900	040	100)* 5	Setup			S1*	
Item Name:	Doubler									Stop	*N;	S2*	
Start Date:	5/24/13	Start Qty: 10.00	*10*		Cust Item I	D:						;	
Required Date:	5/24/13	Req'd Qty: 10.00	*10*		Customer:							1	
Reference:									•				
Approvals:	Process Pla	ın:	Date: 13-04-11	Tooling:	Da	ate:		I	Run	Start	*N	R1*	
	QC:		Date:	SPC (Y/N):	D:	ate:				Stop	*N	R2*	
Sequence ID/ Work Center ID)	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Płan Code	Accept Qty	Reje Qty		Reject Number	Insp. Stamp	
Draw Nbr	Rev	ision Nbr											
646.3700	, A												
110				0.00									
*11 0 * Waterjet		Memo		0.00				12		0		Imis	3-4-15
FLOW CNC Waterje	t	1-Cut as po Dwg Rev:_ Prog Rev:_			·								
		2-Deburr i	f necessary										
120		QC2- Inspect parts off	machine FAI/FAIB	0.00									
120								12	Ġ	۵		Jm13	-4-19

0.00

Memo

Quality Control

												DQA:	Da	te:	, x
NCR:	Yes	/ No				WORK ORDER NON-	COL	NFORM	ANCE / UPD	ATE					*
												QA Closed:	Da	te:	W date to the latest t
)				- 1.00 <u>- 10</u>		DISPOSITION				AGAINST I	DEI	PARTMENT	/PROCESS		
Work Ord	er:					Rework	7		Skid-tube	Crosstube	\neg		Water Jet		Engineering
Dart	Nic					Scrap	1	l .	Machining	Small Fab	\dashv	Pro	d. Eng. Coor.	-	Quality
Parti	NO.					Use-as-is	1		noforming	Finishing			e/Packaging		Other
NCR I	Nο					Work Order Update	1		Large Fab	Composite		,	Supplier	-	
TTCTT	10.						_		0.						
Root					Descri	ption of work order update		nitial	Acti	on		Sign &			
Cause		Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Descri	ption		Date	Verificatio	n	QC Inspector
Doc/Data															
Equip/Tooling			1												
Operator															
Material				1											
Setup															
Other															
Process															
Supplier															İ
Training															
Unapproved												<u> </u>			<u> </u>
							AUI	T CATE	GORY						
Landi	ing (Gear			_	General		1		r		1		_	1
		Bending				Bend	<u></u>	Grain				Ovalized		\vdash	Pressure/Forced
	L	Centre N	ot Conce	ntric to	o/s	BOM/Route	_	Hardwa				Over/Under		<u> </u>	Temperature/Cure
		Cracks				Broken/Damaged		4 `	on Incomplete			Part Incorre		\vdash	Weld
	Crushed/Crimped.					Burrs	_	1	ions Incomplete/U	nclear		Part Lost/M	•		Wrong Stock Pulled
		Cuffs			L	Contamination		Mainte	nance			Part Moved			
		Heat Trea	at			Countersink		Mislabe	led			Positioned \	_	 -	٦
	1	Inspectio	n Strip in	Tube		Cut Too Short		Misread	1			Power Loss/	'Surge	L	Other

Offset

Out of Calibration
Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

Drill Holes

Drawing

Work Ordo April-11-13 2:0		591		*99	591*						Page 2
Item ID: Revision ID: Item Name:	646.3717 Doubler			Accept	*N900	<u>0401</u>	nn	* s	etup Sta	IV	S1* S2*
Start Date: Required Date: Reference:	5/24/13 5/24/13	Start Qty: 10.00 Req'd Qty: 10.00	*10* *10*		Cust Item II Customer:	D:					. 17
Approvals:	Process Pla	nn:	Date:	Tooling: SPC (Y/N):	Da			R	un Sta	1\	R1* R2*
Sequence ID/ Work Center II 130 *130* QC Quality Control	D	Operation Description QC8- Inspect parts - seco	and check	Set Up/ Run Hours 0.00 27 9-6	Tool ID	Tool # F	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
*140 *140* Outsource4 Outsource process -	Anodize	Outsource process-Anodi Memo Issue P/O:_ HARD ANO	ze per QSI017 4.1.10.1	0.00 0.00 S PER DWG.(SEE NO	OTE 2)		-	CZ	13/	os/17	(12)
150 *150* Packaging		Receive & Inspect for Da	nmage & Mat'l Certs	0.00			•	{	43	15/17	(12)

Packaging

											DQA:	Date	:
NCR:	Yes	/ No				WORK ORDER NON-O	OI	NFORM	MANCE / UPDATE		QA Closed:	Date	:
Work Orde	or:	- 1				DISPOSITION			AC	GAINST DE	PARTMENT	/PROCESS	
Part NCR N	۷o.					Rework Scrap Use-as-is Work Order Update		ا Therm	Machining Sm noforming Fi	osstube nall Fab nishing nposite		Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root					Descri	ption of work order update		nitial	Action		Sign &		
Cause		Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Description	1	Date	Verification	QC Inspector
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Other	L							· ·					
Process	Ш		ļ										
Supplier	Ш							٠.					
Training													
Unapproved				<u></u>			1_				<u> </u>	<u> </u>	
	<u>.</u>				· · · · · · · · · · · · · · · · · · ·		AUI	T CATE	GORY	·			
Landi			-		_	General	_	1 ₆ .		Γ	10 -1:	Г	Pressure/Forced
	<u> </u>	Bending				Bend	\vdash	Grain		<u> </u>	Ovalized	<u> </u>	Temperature/Cure
	\vdash	Centre N	ot Conce	ntric to (^{D/S}	BOM/Route	-	Hardwa			Over/Under	<u> </u>	Weld
	\vdash	Cracks			_	Broken/Damaged	-	d '	on incomplete	-	Part Incorre	_	
	\vdash	Crushed/	Crimped		<u> </u>	Burrs	-	4	ions Incomplete/Unclea	ır	Part Lost/M	ISSING	Wrong Stock Pulled
	Cuffs Contamination					-1	-	Mainte		-	Part Moved	A / a a	•
	Heat Treat Countersink						\vdash	Mislabe		<u> </u>	Positioned \		704
	\vdash	Inspectio	•	Tube	<u> </u>	Cut Too Short	_	Misread	1	L.	Power Loss/	Surge _	Other
		Ripples in	Bend			Drill Holes		Offset					

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish

Work Ord e April-11-13 2:0		9591		*99!	591*							Page	3 ;
Item ID: Revision ID: Item Name:	646.3717 Doubler			Accept	*N90	<u> </u>	100)*	Setup S	Start Stop	*N:	S1* S2*	!
Start Date: Required Date: Reference:	5/24/13 : 5/24/13	Start Qty: 10.00 Req'd Qty: 10.00	*10* *10*		Cust Ite Custom		•						,
Approvals:		an:	Date:			Date:				Start Stop	*NI *NI	₹1* ₹2*	
Sequence ID/ Work Center II 160 *160* QC Quality Control	D	Operation Description QC5- Inspect part comple	eteness to step on W/O	Set Up/ Run Hours 0.00	Tool I 27 27 S-17	ID Tool#	Plan Code	Accept Qty	Rejec Qty		Reject Number	Insp. Stamp	
170 SprayPaint Spray Painting			MIN-P-23377J TYPE1 C 4860-50 PRIMER BATC		i. (SEE NOTE 2)					- v - v-			
180 *180* QC Quality Control		QC14- Inspect Spray Pair	nt \	0.00	SH)			-	<u></u>			,	:

NCR:	Yes	/ No				WORK ORDER NON-O	COL	VFORM	MANCE / UPI	DATE			
											QA Closed:	Date:	
Work Ord	er:					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
						Rework]		Skid-tube	Crosstube		Water Jet	Engineering
Part l	No.					Scrap		ı	Machining	Small Fab	ł	d. Eng. Coor.	Quality
						Use-as-is			noforming	Finishing	Rec/Stor	re/Packaging	Other
NCR I	۷o.					Work Order Update			Large Fab	Composite		Supplier	
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Cause		Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Descr	iption	Date	Verification	QC Inspector
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Landi	201	Coar				r General	AUL	.! CATE	GORT		···		
Landi	ng (Bending				Bend		Grain			Ovalized		Pressure/Forced
	_	4 -	nt Concer	ntric to		BOM/Route	\vdash	Hardwa	re		Over/Under	tolerance	Temperature/Cure
	Centre Not Concentric to O/S Cracks					Broken/Damaged	\vdash	4	ion Incomplete		Part Incorre		Weld
	Cracks Crushed/Crimped.					Burrs		1	ions Incomplete/l	Jnclear	Part Lost/M	 	Wrong Stock Pulled
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		Heat Trea	ıt			Countersink		 Mislabe	eled	 	Positioned V	Vrong	
		Inspection		Tube		Cut Too Short		Misread	d		Power Loss/	Surge	Other
	Г	Ripples in				Drill Holes		Offset			-		
	Г	Torque W	aves in E	xtrusio	n 🗀	Drawing		Out of (Calibration				
		Turning S	equence			Finish		Out of 9	Sequence				

Outside Dimensions

Date: ___

DQA:

Turning Sequence

Wave/Twist in Tube

Work Orde		591		*995	591*							Page 4
Item ID: Revision ID:	646.3717			Accept	*N900	040	100)*	Setup	Start	*N	S1*
Item Name:	Doubler									Stop	*N:	S2*
Start Date: Required Date: Reference:	5/24/13 5/24/13	Start Qty: 10.00 Req'd Qty: 10.00	*10* *10*		Cust Item II Customer:	D:						·
Approvals:	Process Pla	n:	Date:	Tooling:	Da	ite:			Run	Start	*N	R1*
	QC:		Date:	SPC (Y/N):	Da	ite:				Stop	*N	R2*
Sequence ID/ Work Center II)	Operation Description	ck Location: St-53	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	t Rej Qty		Reject Number	Insp. Stamp
190 *100* Packaging		Memo	ck Location.	0.00					- –	/4	3/5/j	2 (h)
Packaging		***IDENTIF REV***	Y AS PER APICAL MPP-	120 BY STAMPING TH	IE P# AND				·	•	/ /′	
200		QC21- Final Inspection -	Work Order Release	0.00					1:	3 K	1219	19
200 QC Quality Control		Memo		0.00								
Quanty Control												205.1
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Manh Ond						DISPOSITION				AGAINST D	EF	PARTMENT	PROCESS		
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IVCIVI	v O.					Work Order opdate	ا لـ		zarge raz		لــ				
Root			T		Descri	ption of work order update		nitial	Ac	tion	T	Sign &			
Cause		Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Desc	ription		Date	Verificatio	n	QC Inspector
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		Bending				Bend	\perp	Grain		-	$\overline{}$	Ovalized		<u>_</u>	Pressure/Forced
	L	Centre N	ot Conce	ntric to	o/s	BOM/Route	<u></u>	Hardwa		<u></u>	-	Over/Under			Temperature/Cure
	L	Cracks				Broken/Damaged	L	4 `	ion Incomplete	<u> </u> _	-	Part Incorre		_	Weld
		Crushed/	Crimped.			Burrs	_	4	ions Incomplete/	Unclear	-	Part Lost/Mi	ssing	L	Wrong Stock Pulled
	<u></u>	Cuffs				Contamination		Mainte		_		Part Moved			
		Heat Trea	at			Countersink		Mislabe	eled		_	Positioned V	=	_	7
i		Inspectio	n Strip in	Tube		Cut Too Short	1	Misread	4		,	Power Loss/	Surge		Other

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

Drill Holes

Drawing

Finish

Picklist Print

^{*}April-11-13 2:06:07 PM

Work Order ID:

99591

Parent Item:

646.3717

Parent Item Name:

Doubler

Start Date: 5/24/13

Required Date: 5/24/13

Page 1

Start Qty: 10.00

Required Qty: 10.00

Comments:

IPP REV:A 12.10.22 NEW ISSUE DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M6061T6S.063 6061-T6 .063 Sheet		Purchased	No			110	sf	232.8625	0.036	936 0:5			-HEINT

Location	Loc Qty	Loc Code	
MAT021	232.8625		
123135	120.5625		
124003	112.3		124003

											DQA:	Dat	e: _	
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											QA Closed:	Dat	e:	Secretary of the second second
Work Orde	or.					DISPOSITION				AGAINST DE	PARTMENT,	/PROCESS		
WOIR Old						Rework	7		Skid-tube	Crosstube		Water Jet		Engineering
Part N	No.					Scrap	1		Machining	Small Fab	Pro	d. Eng. Coor.		Quality
						Use-as-is]		noforming	Finishing	Rec/Sto	re/Packaging		Other
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Cause		Date	Step	Qty		or Non-conformance	Ch	nief Eng	Descri	ption	Date	Verification	1	QC Inspector
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Landi	ng Ge	ar				General		-			-	,		
	В	ending				Bend	L	Grain			Ovalized			Pressure/Forced
	C	entre No	t Concer	ntric to (o/s	BOM/Route		Hardwa	re		Over/Under	tolerance		Temperature/Cure
	Cı	racks				Broken/Damaged		Inspecti	on Incomplete		Part Incorre	ct		Weld
	Crushed/Crimped.					Burrs		Instructi	ions Incomplete/Ur	nclear	Part Lost/M	issing		Wrong Stock Pulled
	Cuffs Contamination						Mainte	nance		Part Moved				
	Н	eat Trea	t			Countersink		Mislabe	led		Positioned \	Vrong		
	Inspection Strip in Tube					Cut Too Short		Misread	1		Power Loss/	'Surge		Other
	Ri	pples in	Bend			Drill Holes		Offset			_	•		

Out of Calibration Out of Sequence

Outside Dimensions

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Ripples in Bend

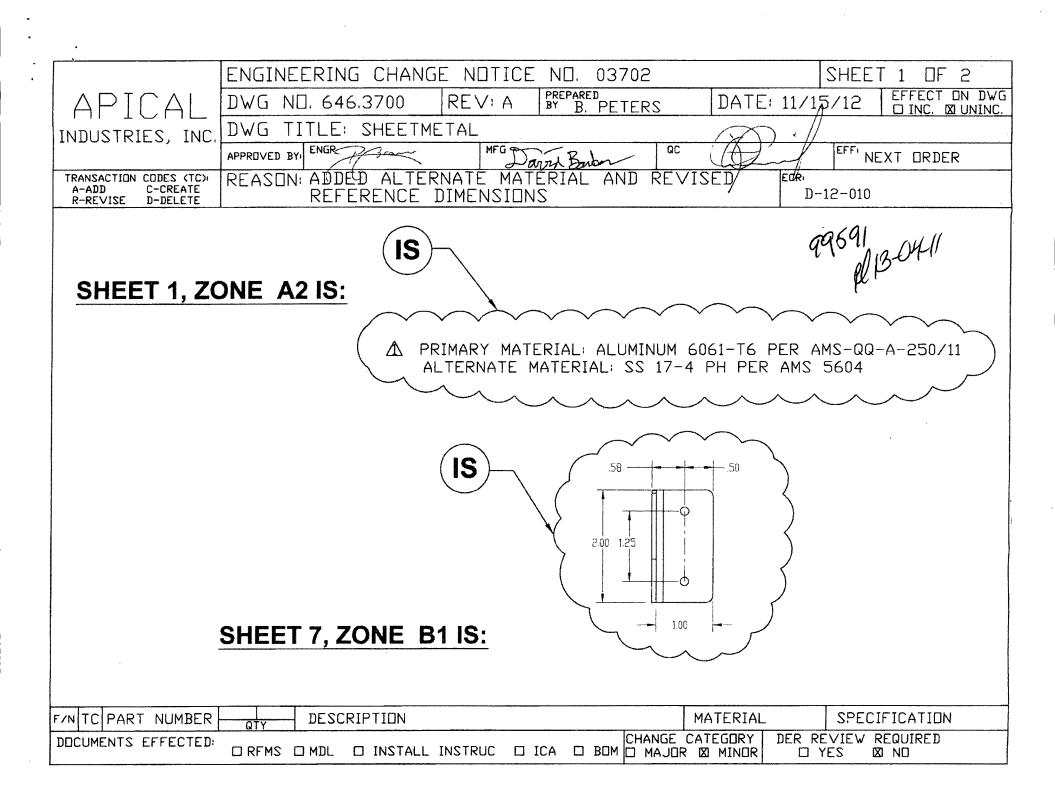
Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish



NCR: Y	es / No				WORK ORDER NON-O	COI	NFORM	ΛANCE / UPΓ	DATE			•
										QA Closed:	Date	e:
Work Orde	er:				DISPOSITION	,			AGAINST DE	PARTMENT	/PROCESS	
Part N	•				Rework Scrap Use-as-is Work Order Update		l Therm	Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite	-1	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root				Descri	ption of work order update	l i	Initial	Act	ion	Sign &		
Cause	Date	Step	Qty		or Non-conformance	Ch	nief Eng	Descr	iption	Date	Verification	QC Inspector
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Operator								I				
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	 i	Not Conce	ntric to C)/S	BOM/Route		Hardwa		<u> </u>	Over/Under	 -	Temperature/Cure
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	Heat Treat Countersink						Mislabe	led		Positioned W	· · ·	 1
	Inspection Strip in Tube Cut Too Short						Misread	I		Power Loss/:	Surge	Other
	Ripples in Bend Drill Holes						Offset					
	Torque	Waves in I	Extrusion		Drawing	L	Out of C	Calibration				

Out of Sequence

Outside Dimensions

DQA:

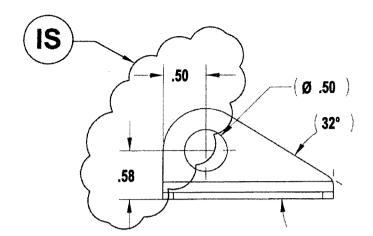
Date:

Turning Sequence

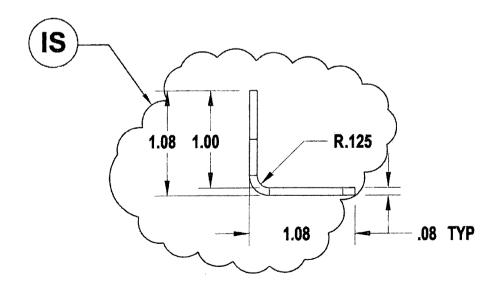
Wave/Twist in Tube

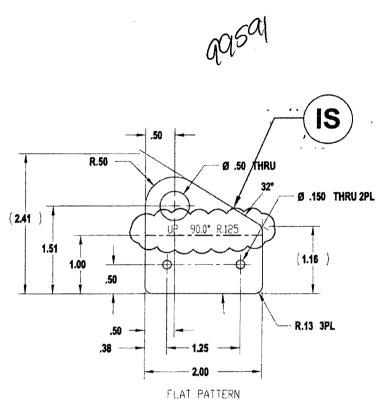
Finish

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SHEET 7, ZONE C4 IS:





SHEET 7, ZONE B7 IS:

SHEET 7, ZONE D1 IS:

F/N TC PART NUMBER

QTY

DESCRIPTION

MATERIAL/SPECIFICATION

											DQA:	Dat	te:	
NCR:	Yes	/ No				WORK ORDER NON-	COI	NFORM	MANCE / UPI	DATE			•	
											QA Closed:	Dat	te:	,
Work Ord	er:					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS		
						Rework]		Skid-tube	Crosstube	1	Water Jet		Engineering
Part	No.					Scrap		1	Machining	Small Fab	-1	d. Eng. Coor.		Quality
						Use-as-is]		noforming	Finishing	Rec/Sto	re/Packaging		Other
NCR	No.					Work Order Update	_		Large Fab	Composite]	Supplier		
Root					Descri	ption of work order update		Initial	Act	ion	Sign &			
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		Cracks				Broken/Damaged		Inspecti	on Incomplete		Part Incorre	ct [Weld
		Crushed/	/Crimped			Burrs		Instruct	ions Incomplete/L	Jnclear	Part Lost/Mi	ssing		Wrong Stock Pulled
		Cuffs				Contamination		Mainte	nance		Part Moved	_		
		Heat Trea	at			Countersink		Mislabe	led		Positioned V	Vrong		
		Inspectio	n Strip in	Tube		Cut Too Short		Misread	I		Power Loss/	Surge [Other
		Ripples in	n Bend			Drill Holes		Offset			_	_		

Out of Calibration

Out of Sequence

Outside Dimensions

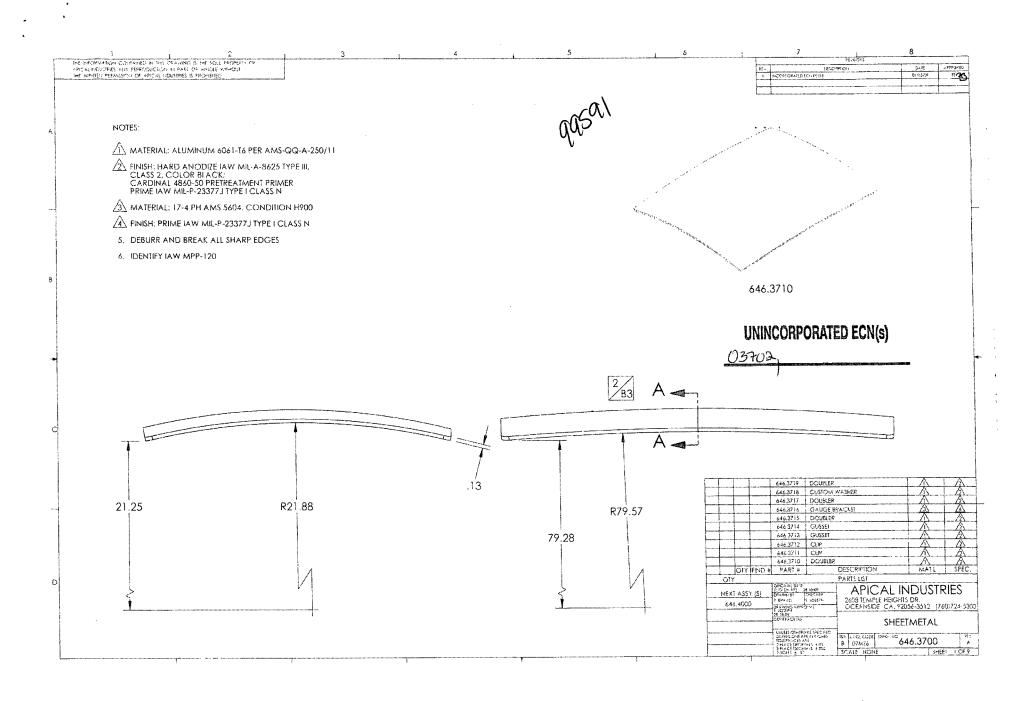
Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

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												DQA:	Da	te:	,
NCR:	Yes	/ No				WORK ORDER NON-O	COI	NFORM	MANCE / UP	DATE				_	*
		,										QA Closed:	Da	te:	
Work Orde	or-					DISPOSITION				AGAINS	T DE	PARTMENT	/PROCESS		
WOIK Old	٠					Rework	1		Skid-tube	Crosstub	_ [İ	Water Jet		Engineering
Part I	VΩ					Scrap	1		Machining	Small Fa	_	Pro	d. Eng. Coor.	\dashv	Quality
						Use-as-is	1		noforming	Finishin			re/Packaging		Other
NCR I	No.					Work Order Update	1		Large Fab	Composit	~—	·	Supplier	_	
	•					' -	•		· <u> </u>	·					
Root					Descri	ption of work order update		Initial	Act	tion		Sign &			
Cause		Date	Step	Qty	C	or Non-conformance	Ch	nief Eng	Desc	ription		Date	Verification	n	QC Inspector
Doc/Data															
Equip/Tooling															
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	-	Bending				Bend	<u> </u>	Grain			-	Ovalized		-	Pressure/Forced
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Out of Calibration
Out of Sequence

Outside Dimensions

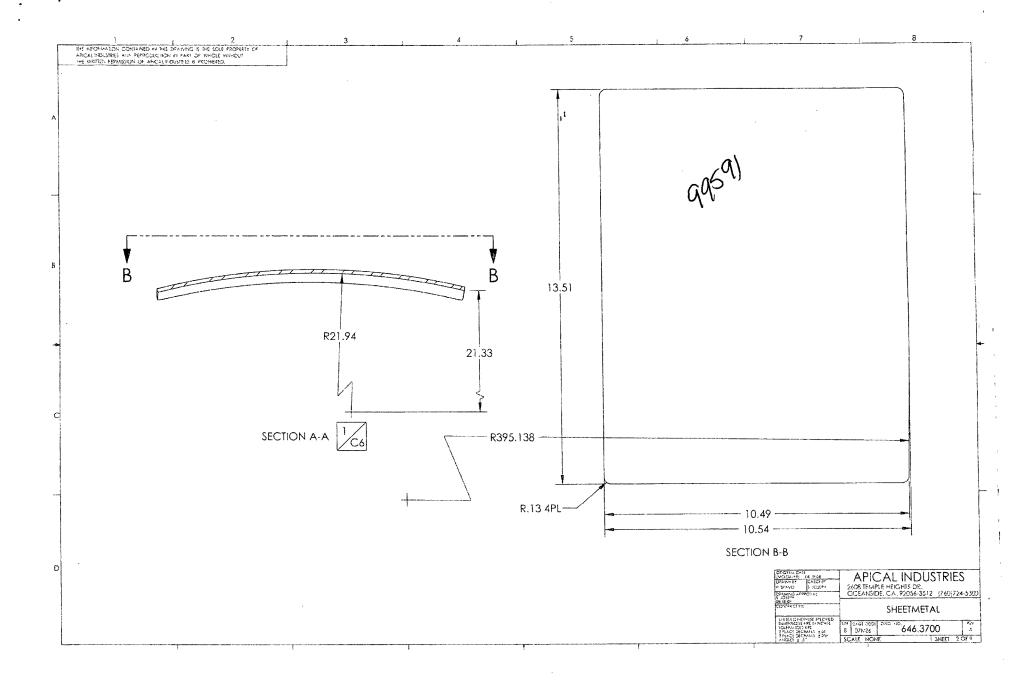
Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

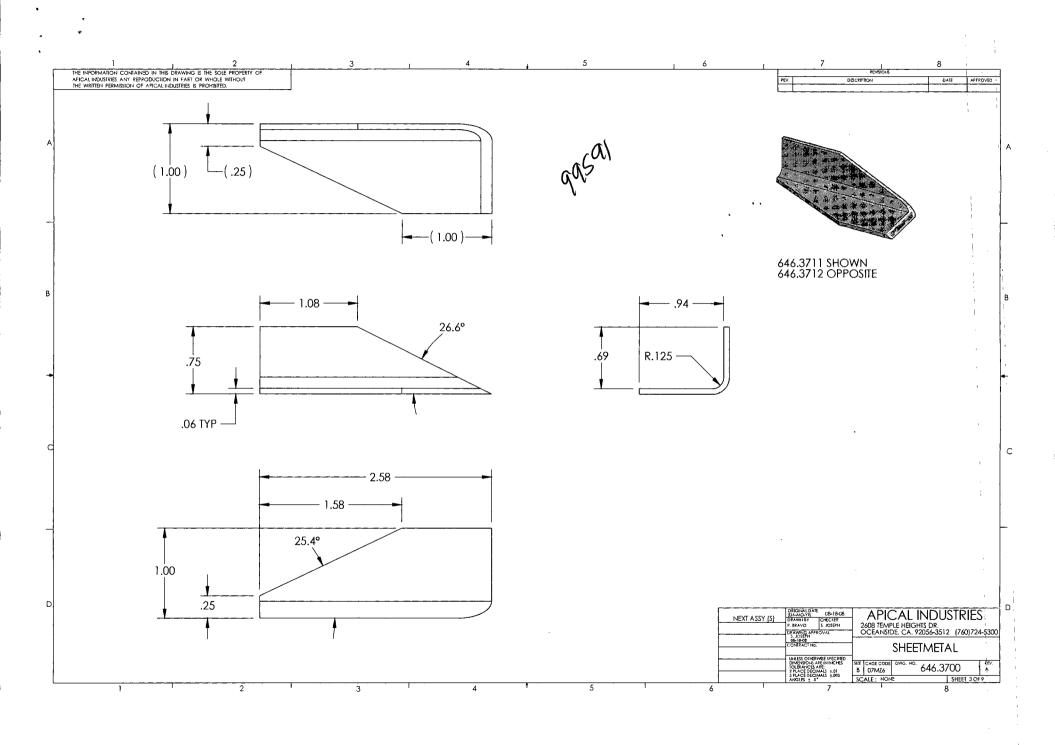


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Cause		Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Descr	iption	Date	Verification	QC Inspector
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Outside Dimensions

Wave/Twist in Tube

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1	ı	Torque W	/aves in l	Extrusio	n	Drawing	1	Out of 0	Calibration				

Out of Sequence

Outside Dimensions

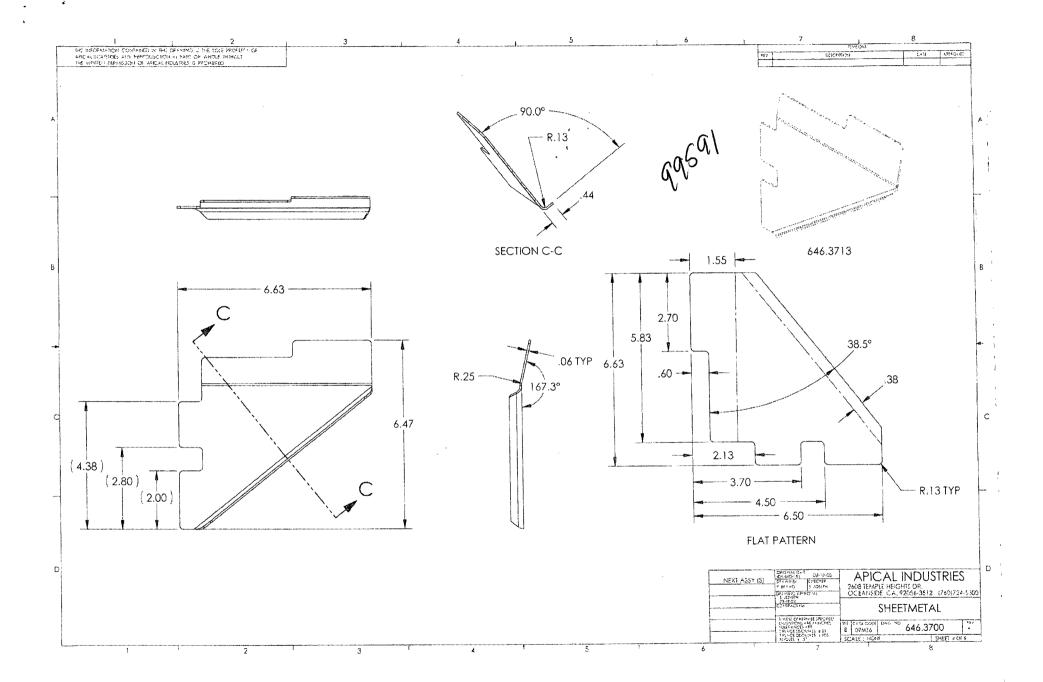
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Turning Sequence

Wave/Twist in Tube

Finish



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Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

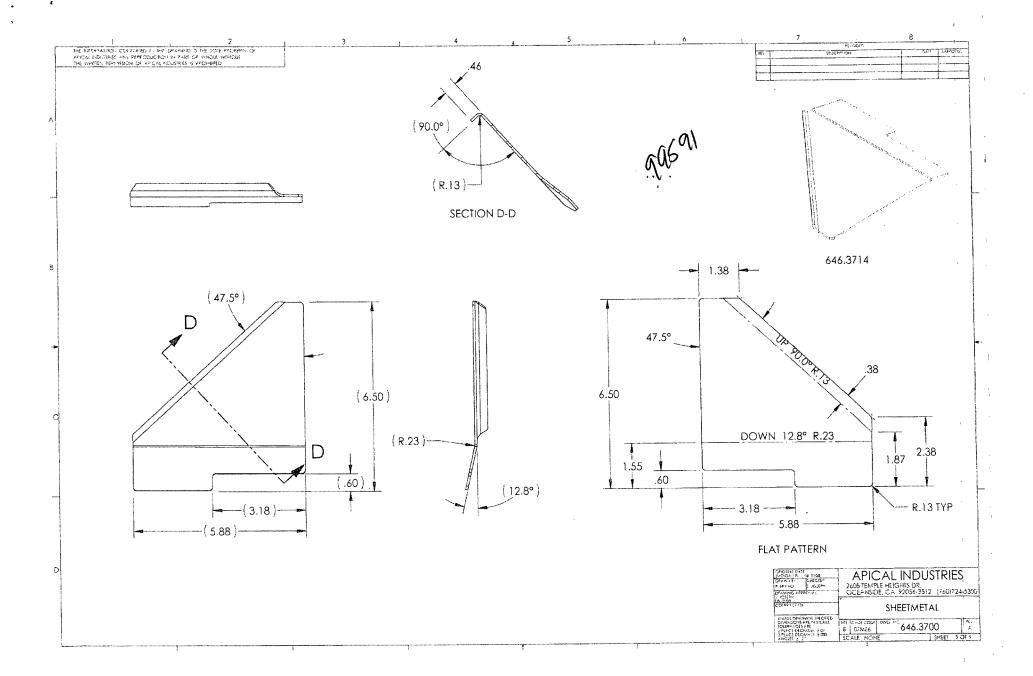
Torque Waves in Extrusion

Drill Holes

Drawing

Finish

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Misread

Out of Calibration
Out of Sequence

Outside Dimensions

Offset

Power Loss/Surge

Other

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Inspection Strip in Tube

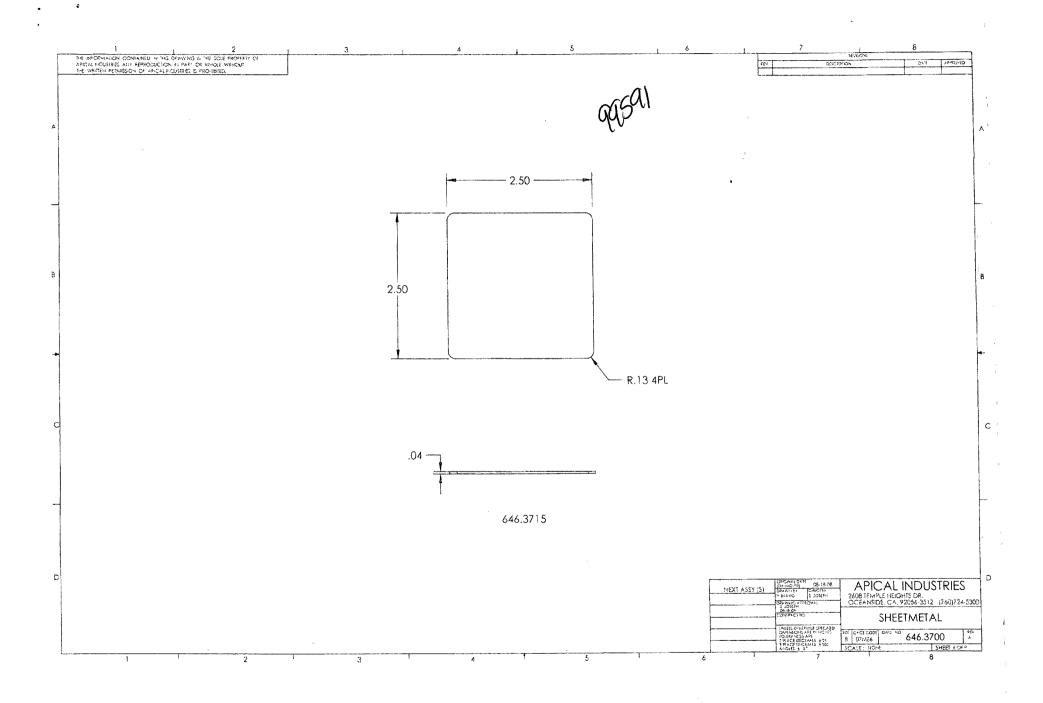
Torque Waves in Extrusion

Cut Too Short

Drill Holes

Drawing

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											DQA:	Date:	
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Misread

Out of Calibration
Out of Sequence

Outside Dimensions

Offset

Power Loss/Surge

Other

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Inspection Strip in Tube

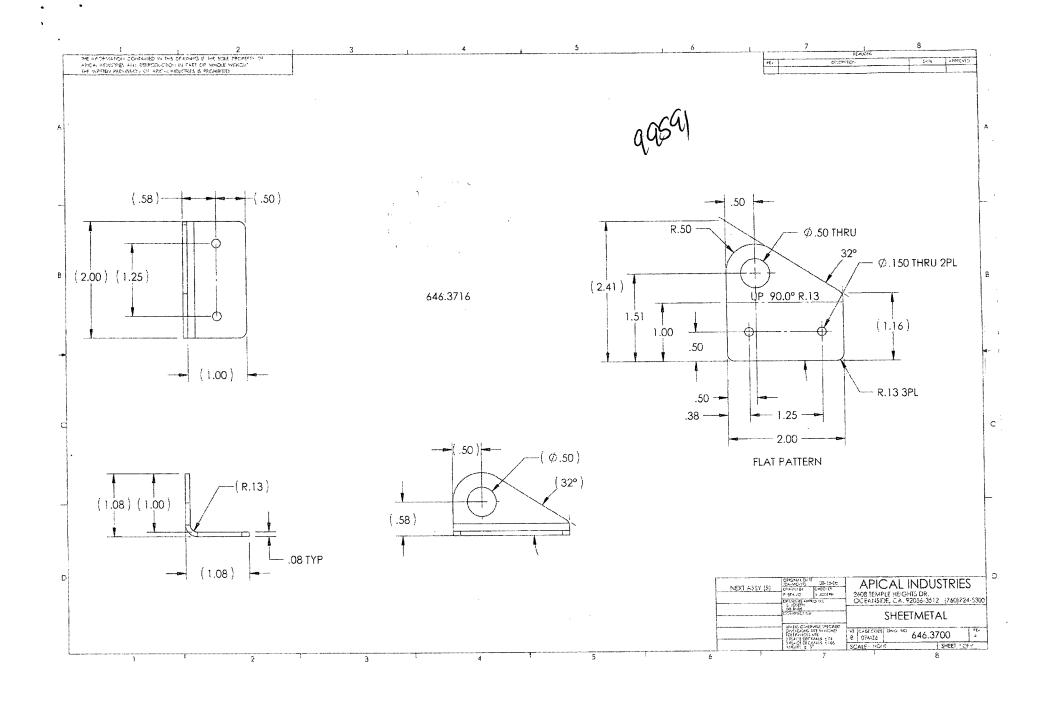
Torque Waves in Extrusion

Cut Too Short

Drill Holes

Drawing

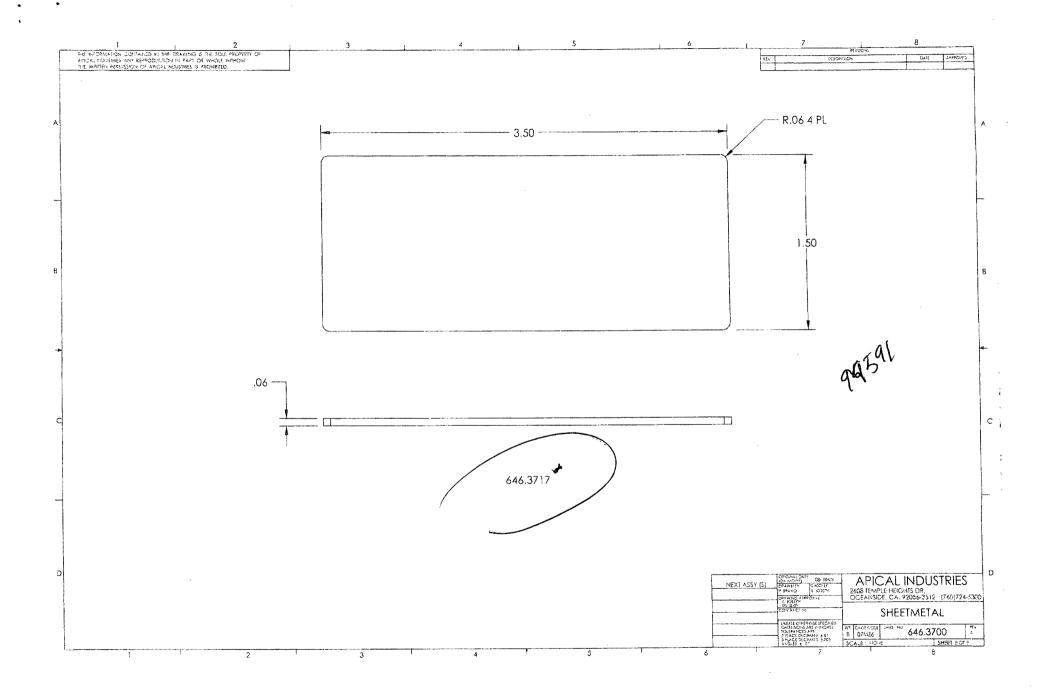
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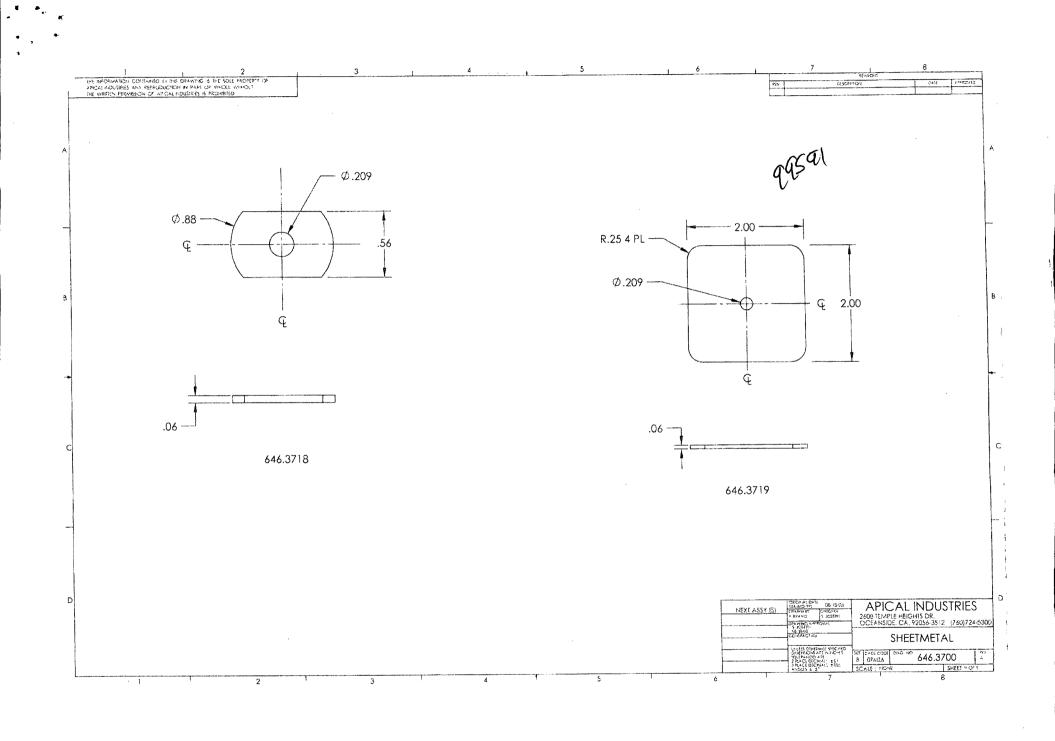
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		tion Strip ii	1 Tube	_	Cut Too Short	\vdash	Misread	i .		Power Loss/	Surge	Other
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Outside Dimensions

Date:

Wave/Twist in Tube

DART AEROSPACE LTD	Work Order:	99591
	,	
Description: Doubler	Part Number:	646.3717
Inspection Dwg: 646.3700 Rev: A		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
1.50"	11-0-0104	1.506	-		U	Ilmos
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Measured by:	JM	Audited by:	27 269	Preliminary Approval:	
Date:	13-4-19	Date:	134,19	Date:	

Rev	Date	Change	Revised by	Approved
E	10.04.14	Added preliminary approval	KJ	

A 10.04.15



A.T.G. Industries Inc. 731, rue Industrielle Rd. PLATING DEPARTMENT Rockland, On K4K 1T2 Canada

Ph: (613) 446-4544 Fax: (613) 446-4556

Pack List

Number: 62382

Date: 17-May-13

То

DART AEROSPACE LTD 1270 ABERDEEN ST. HAWKESBURY, ON K6A 1K7 Canada Ship To

DART AEROSPACE LTD 1270 ABERDEEN ST. HAWKESBURY, ON K6A 1K7

Canada

Ph: 613-632-5200

Fax: 613-632-1185

Ph: 613-632-5200

Fax: 613-632-1185

Terms		Ship Via			
Quantity	Description				
1	Part: ASST		Rev:		
lot		·			
	10 PCS 646.3110 12 PCS 646.3717				
	HARD ANODIZE BLACK				
<	MIL-A-8625 TYPE III CLASS 2			•	
	PRIME PER MIL-P-23377J TYPE I	CLASS N			
	2 PCS D4410-043				
	BLACK ANODIZE				
	MIL-A-8625 TYPE II CLASS 2 Job: 20130289	PO: 19717	Line:		
•	Certificate of Cont	rormance			
	A.T.G. Industries certifies that all items i with all requirements, specifications and	n this shipment are in d	conformance		
			i tile puicitase order.		
	ISO 9001 : 2008 REG ATG SALES-2010 TE				
	DATE: 17/8/13				
	CERTIFIED SIGNATURE:				
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